

Amendments to the Claims:

1. (currently amended) A method of selecting operational parameters of a communication network, the method comprising the steps of;

searching an operational parameter space using a multiple objective simulated annealing (MOSA) process wherein the searching step includes;

defining a quality of service objective objectives  
based upon a energy per bit noise floor (Eb/No)  
~~performance indicators~~ of the communication network;  
generating by the MOSA process an archive of estimated values of a Pareto front; and  
employing by the MOSA process a dominance-based energy function to select the operational parameters minimize an average ratio between a mobile station Eb/No (energy per bit noise floor) achieved and an Eb/No target; and

applying the Eb/No target ~~operational parameters~~ in the operation of mobile stations in the communication network.

2. (original) A method according to claim 1, wherein the dominance-based energy function,  $E(x)$ , is defined substantially as

$$E(x) = \mu(\tilde{F}_x),$$

where  $\mu$  is a measure defined on  $\tilde{F}_x$ , and  $\tilde{F}_x$  is defined substantially as

$$\tilde{F}_x = \{y \in \tilde{F} \mid y \prec x\},$$

such that  $\tilde{F}_x$  is the set of elements of  $\tilde{F}$  that dominate solution  $x$ , where  $\tilde{F}$  is the union of the current set of mutually non-

dominating solutions found, with the current solution  $x$  and the proposed perturbed solution  $x'$ .

3. (previously presented) A method according to claim 2, wherein the difference in the dominance-based energy function between current solution  $x$  and proposed perturbed solution  $x'$  is evaluated substantially as

$$\delta E(x, x') = \frac{1}{|\tilde{F}|} \left( |\tilde{F}_x| - |\tilde{F}_{x'}| \right),$$

all terms as defined herein.

4. (previously presented) A method according to claim 1, wherein additional values of the estimated Pareto front are obtained by randomly sampling an attainment surface of the archive of estimated values of the Pareto front.

5. (currently amended) A method according to claim 1, wherein the MOSA process ~~can~~ perturbs the present solution for  $x$ ,  $x'$ , that is scaled using one of two scaling schemes;

- i. transversal scaling
- ii. location scaling

6. (currently amended) A method according to claim 1, wherein objectives may also be based upon performance indicators of the communication network from any or all of the following categories;

- i. Capacity; and
- ii. Coverage; ~~and~~
- iii. ~~Quality of service.~~

7. (previously presented) A method according to claim 1, wherein notional costs are applied to the objectives and/or the operational parameters according to a given scenario.
8. (original) A method according to claim 7, wherein the solution with the lowest cost within the archive of estimated values of the Pareto front is chosen for a given scenario.
9. (canceled).
10. (canceled).